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# **Short Form Botany Resource Report: Biological Assessment/Evaluation for Threatened, Endangered, Proposed, and Sensitive Plant Species; Survey and Manage Report; and Noxious Weed Risk Assessment**

**South Fork Tributary Habitat Enhancement Project**  
Salmon/Scott River Ranger District, Klamath National Forest  
Siskiyou County, California

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# BIOLOGICAL ASSESSMENT FOR THREATENED, ENDANGERED, AND PROPOSED PLANT SPECIES

## Introduction

Species list addressed: U. S. Fish and Wildlife Service (USFWS) Threatened, Endangered, and Proposed plant species (USFWS 2016)

Project area reviewed for presence of populations, habitat, and range: Yes

## Methodology

A pre-field review was conducted to determine which species of concern are present, and for which species a field survey may be necessary (Appendix B). Surveys were not triggered for any species listed as Threatened, Endangered, or Proposed. Field surveys have been conducted for the specific project area.

The U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation (IPaC) web service provided the following list of species to the Salmon River Restoration Council on December 13, 2016 (USFWS 2016). This BA addresses these species:

*Arabis macdonaldiana*

*Chamaesyce hooveri*

*Fritillaria gentneri*

*Orcuttia tenuis*

*Pinus albicaulis*

## **Analysis Indicators**

The analysis indicators for measuring the effects of the South Fork Tributary Habitat Enhancement Project are based on law, policy, and direction. Section 7 of the Endangered Species Act of 1973, as amended, and Forest Service Policy (FSM 2670) direct Federal agencies to ensure that any action authorized, funded, or permitted by such agencies is not likely to jeopardize the continued existence of species listed, or proposed to be listed as Endangered or Threatened by the U.S. Fish and Wildlife Service (USDA 2005). There are no plant species listed as Threatened, Endangered, or Proposed within the project area, therefore, there will be no impacts to analyze as a result of project activities.

## **Spatial and Temporal Context**

The project area is the analysis area. There are no plant species listed as Threatened, Endangered, or Proposed within the project area, therefore, there will be no short-term or long-term effects to define.

## Affected Environment

The South Fork Tributary Habitat Enhancement Project is not within the range and/or habitat of any plant species listed as Threatened, Endangered, or Proposed. No populations of any federally listed plant species have been recorded in botanical records or identified in previous surveys within the South Fork Tributary Habitat Enhancement Project area. No critical habitat is

established for these species in the project area. In addition, no federally listed plant species were found during surveys for this project. Therefore, there will be no effects to compare between alternatives for this project.

## Environmental Consequences

### **Alternative 1 and Alternative 2**

The South Fork Tributary Habitat Enhancement Project is not within the range of any federally listed TEP plant species. A field review has been conducted, and no potentially suitable habitat has been located. *It is my determination that the South Fork Tributary Habitat Enhancement Project will not affect Arabis macdonaldiana, Chamaesyce hooveri, Fritillaria gentneri, Orcuttia tenuis, or Pinus albicaulis because there are no direct or indirect effects, and therefore there are no cumulative effects.*

## Compliance with law, regulation, policy, and the Forest Plan

The South Fork Tributary Habitat Enhancement Project complies with Section 7 of the Endangered Species Act of 1973, as amended, and Forest Service Policy (FSM 2670).

# BIOLOGICAL EVALUATION

## Introduction

Species list addressed: Klamath National Forest Sensitive Plant Species (USDA 2013a)

Project area reviewed for presence of populations, habitat, and range: Yes

## Methodology

A pre-field review was conducted to determine which species of concern are present, and for which species a field survey may be necessary. Surveys were triggered for the following species (Appendix A2, step 5):

### Vascular Plants

*Cypripedium fasciculatum* (clustered lady's slipper)

*Cypripedium montanum* (mountain lady's slipper)

*Erythronium hendersonii* (Henderson's fawn lily)

### Bryophytes

*Mielichhoferia elongata* (elongate copper moss)

### Fungi

*Cudonia monticola*

*Phaeocollybia olivacea*

Field surveys have been conducted for the above species within the project area. A California Department of Fish and Wildlife (CDFW)-contracted botanist performed intuitive controlled surveys on May 16<sup>th</sup>, 2016 as part of the California Environmental Quality Act (CEQA) process.

*Erythronium hendersonii* is a Forest Service Sensitive species for which surveys were triggered for compliance with CEQA and this report (Appendix A2, step 5). The project botanist surveyed for *Erythronium* species and did not locate any populations of *Erythronium hendersonii* within the analysis area.

The project botanist surveyed for orchid species and did not locate any populations of *Cypripedium fasciculatum* or *Cypripedium montanum* within the analysis area.

The pre-field review (Appendix A2, step 3) indicated that the project area is within range and contains potentially suitable habitat for two Forest Service Sensitive fungi, *Cudonia monticola* and *Phaeocollybia olivacea*. Surveys for preferred habitat were conducted, but occurrence surveys were not conducted because the fungi would not be fruiting during the window for project surveys. For this analysis the project effects to the potentially suitable habitat for these fungi species will be evaluated.

The pre-field review also indicated that the project area is within range and contains suitable habitat for the Forest Service Sensitive bryophyte *Mielichhoferia elongata*. The project botanist surveyed for bryophytes similar to *Mielichhoferia elongata* and did not observe any similar species. For this analysis the project effects to the areas of suitable habitat for this species will be evaluated.

### **Analysis Indicators**

The analysis indicators for measuring the effects of the South Fork Tributary Habitat Enhancement Project are based on law, policy, and direction. Forest Service Policy (FSM 2670) directs Federal agencies to ensure that any action authorized, funded, or permitted by such agencies is not likely to jeopardize the continued existence of species listed as Sensitive by the Regional Forester, or to cause a trend to federal listing for species listed as Sensitive (USDA 2005). Forest-wide Standards and Guidelines have been developed that direct the management of Sensitive plant species to ensure maintenance of reproducing, self-sustaining populations and to prevent the need for the species to become listed as T&E species (USDA 1995, as amended).

The alternatives are compared using the following indicators:

- The likelihood that the level of disturbance would decrease the ability of the species to maintain reproducing, self-sustaining populations within the project area.
- The likelihood that habitat would be managed in a manner that most closely imitates the natural ecological processes that created and maintained the habitat historically.

### **Spatial and Temporal Context**

The project area is the analysis area. This boundary is appropriate for assessing the project impacts as they might be experienced by existing sensitive species within the project area.

The temporal boundaries for *Cudonia monticola*, *Mielichhoferia elongata*, and *Phaeocollybia olivacea* is the time it takes to complete project implementation and for a layer of mulch and debris to recover bare ground, three to five years.

## Affected Environment

I have reviewed the proposed project area and the GIS Sensitive plant layer. Field surveys did not find any other sensitive species that were within the range and/or habitat of the project. A habitat survey found that preferred habitat did occur for the fungi *Cudonia monticola* and *Phaeocollybia olivacea*, as well as the moss *Mielichhoferia elongata* within the project area. Potential effects were analyzed for these species because surveys could not be conducted during the appropriate window for observation for the fungi species and, though surveys were conducted for *Mielichhoferia elongata* and it was not observed, this species could occur within the project area. In this BE an evaluation of species-habitat associations, presence of suitable or potential habitat, and a review of the literature on the effects to the species of concern is used to determine potential effects.

### **Present in the Project Area:**

There are no known sites of Forest Service sensitive plants in the project area.

### **Potentially Present in the Project Area:**

#### **Fungi**

***Cudonia monticola***-- *Cudonia monticola* is a rare fungus, endemic to North America, with populations known from British Columbia down the west coast and Cascade Mountains of Washington and Oregon, and into the Klamath Mountains, as well as portions of Arizona, northwest Wyoming and Idaho (Natureserve). As a saprophytic decomposer species, this fungus obtains nutrients via its mycelial network - fine, net-like structures spread throughout rotting wood, duff, and soil (USDA 2003). It has no adaptations to resist drying out, so typically associates with very rotten wood which may be buried and in areas with thick, humid duff or moss that are shaded much of the day. Overstory tree cover is important for this species, as it maintains high moisture levels in forest litter and woody debris.

There is very little specific information available for *Cudonia monticola*. Preferred habitat information for this analysis is based upon a database query of the results of the pre-project surveys, strategic surveys, and purposive surveys that have been completed within Oregon, Washington, and California, and on the species range listed in the scientific literature (Carlson 2015). No sites were discovered during strategic surveys conducted on the Klamath NF, and there are no database records of known sites on adjacent National Forest lands or BLM districts. Two populations of this species were previously documented on the Ukonom Ranger District of the Klamath NF, but have not been re-located in recent years. *Cudonia monticola* has been mostly found on coniferous needles and debris within mature spruce, white fir, and Douglas fir forests in mountain ranges. Although potentially suitable habitat does occur, there is a low potential for the species to occur within the project area because the coniferous stands within the analysis area typically don't hold enough moisture for this species to persist. If present, populations are most likely to occur on wet, north facing slopes or in riparian areas with a perennial stream.

***Phaeocollybia olivacea* (olive *Phaeocollybia*)** –*Phaeocollybia olivacea* populations are known from the western portions of Washington, Oregon, and California as far south as the Mendocino National Forest (USDA 2003). This is an ectomycorrhizal species, such fungi have a highly



interdependent relationship with a host plant, which for this species is typically old growth conifers. Like all ectomycorrhizal species, this fungus has mycelia spread throughout soil, rotting wood, and duff. The mycelia penetrate plant roots, form mycorrhizae, and exchange nutrients with the plant. The network of mycelia can extend over several acres; fruiting structures can form anywhere along the network. Such fungi, require adequate overstory, understory, and shrub layers of diverse species. Overstory tree cover is important for this species, as it maintains high moisture levels in forest litter and woody debris.

There is very little specific information available for *Phaeocollybia olivacea*. Preferred habitat information for this analysis is based upon a database query of the results of the pre-project surveys, strategic surveys, and purposive surveys that have been completed within Oregon, Washington, and California, and on the species range listed in the scientific literature (Carlson 2015). There are 29 known sites on the Klamath National Forest, none of those sites occur within the project area. *Phaeocollybia olivacea* has been found scattered in older mixed forests containing oak, pine, true fir, tanbark oak, or sequoia in western mountain ranges. There is a potential that this species may be present within the project area. If present, populations are most likely to occur on wet, north facing slopes or in riparian areas with a perennial stream.

### **Bryophyte**

***Mielichhoferia elongata* (elongate copper moss)**-*Mielichhoferia elongata* is a widespread, yet rare moss known from Northern America, Europe and Asia. In California, it is known from widely-scattered localities across the state, including the Sierra Nevada Mountains, the Siskiyou Mountains, and the central coast (Appendix A2). Its rarity is due to its unusual habitat preference for crevices of rock overhangs with acidic, mineralized seeps (Swanberg 2013). The moss, which can tolerate high levels of heavy metals, may occur on vernal mesic metamorphic, sedimentary, limestone, granite and serpentine rock outcrops and soils with low-pH that often contain copper or other heavy metals (Appendix A2).

There are no known sites on the Klamath National Forest. There is a potential that this species may be present within the project area. If present, populations are most likely to occur on moist, oxidized rock outcrops.

## **Environmental Consequences**

### ***Alternative 1 -No Action***

#### ***Direct and Indirect Effects***

If the no action alternative is selected, there would be no soil or vegetation disturbance within the project area; the habitat for *Cudonia monticola*, *Mielichhoferia elongata*, and *Phaeocollybia olivacea* would remain the same as the current condition. **Therefore, the no action alternative would have no effect on the ability of *Cudonia monticola*, *Mielichhoferia elongata*, and *Phaeocollybia olivacea* to maintain a reproducing, self-sustaining population within the project area.**

The project area has been altered by historic logging, mining, and stream clearing activities that resulted in broad-scale simplification of riparian forest and channel complexity. As a result, the project area is altered, the lack of stream connection to the floodplain and limited hyporheic flow result in limited riparian shading and nutrient inputs. This restricts the natural ecological

processes which create/maintain riparian conditions and preferred habitat of *Cudonia monticola*, *Mielichhoferia elongata*, and *Phaeocollybia olivacea*. **Therefore, it is unlikely that the no action alternative would result in developing habitat that most closely imitates the natural ecological processes that created and maintained the habitat for *Cudonia monticola*, *Mielichhoferia elongata*, and *Phaeocollybia olivacea* historically.**

### *Cumulative Effects*

The effects of mining activity within the watershed is minimal and limited to small surface disturbances. If the Discovery Day hard rock mine implements a Plan of Operations it would include management to avoid altering or degrading coho salmon habitat and therefore would not cumulatively impact Knownothing Creek. The stream restoration and fuels reduction projects are localized and have a small project footprint relative to the 7th field watersheds.

Therefore, the current condition of the channel in relation to the ongoing activities within the watershed will not combine to result in adverse cumulative effects.

### ***Alternative 2 – Proposed Action***

#### *Direct and Indirect Effects*

#### **Fungi**

The proposed action occurs in areas of potential *Cudonia monticola* and *Phaeocollybia olivacea* populations. Twenty small (<12in DBH) trees will potentially be removed for temporary access, consisting of 15 white alders in riparian areas, and three small oak trees and two small Douglas fir trees in upland areas. Project disturbance (construction and temporary access) will result in minimal loss of shade provided by canopy cover and disturbance to the habitats preferred by the two species (mature conifers and moist, rotting wood). The soil disturbance for this project due to construction is approximately 0.30 acres within the annual floodplain/riparian areas, which is also disturbed annually by high flows. Temporary access routes will disturb approximately 0.35 acres within riparian areas and 0.70 acres in upland areas. Disturbing mycelia generally does not kill a fungus, it fragments the mycelial network and the fungus continues to live and fruit where moisture and nutrients are adequate. Therefore, disturbance from this project would not eliminate potential fungi populations, but would temporarily fragment individuals if they are present. Restoring the channels to a more natural condition would increase the residence time of hyporheic flow, thereby increasing soil moisture levels. Increased soil moisture will enhance riparian vegetation, which will subsequently enhance fungal habitat by increasing shade levels and nutrient availability. Vehicles accessing work areas may disturb individuals, which would likely recover from the localized, temporary disturbance within one to two growing seasons. If present, it is likely that the disturbed mycelia network of both fungal species would re-establish within three to five years following disturbance, as mulch and debris cover bare ground and improve soil moisture. **Therefore, it is very unlikely that the proposed action would decrease the ability of *Cudonia monticola* or *Phaeocollybia olivacea* to maintain reproducing, self-sustaining populations within the project area.**

The majority of the habitat for the Sensitive fungi occurs within the wetter environments of riparian areas, and existing project design features are likely to provide benefits to the Sensitive fungi species. The proposed action involves constructing large-diameter wood instream structures to enhance salmonid habitat within 20 sites in Knownothing and Methodist Creeks over 3.15 miles of stream (1.42 miles and 1.73 miles respectively). Restoring the channels to a

more natural condition and enhancing riparian vegetation would increase the residence time of hyporheic flow, shade, and moisture levels, thereby increasing preferred habitat of *Cudonia monticola* and *Phaeocollybia olivacea* within the project area. **Therefore, it is highly likely that the proposed action would result in developing habitat that most closely imitates the natural ecological processes that created and maintained the habitat for *Cudonia monticola* and *Phaeocollybia olivacea* historically.**

### **Bryophyte**

The proposed action occurs in areas of suitable habitat for *Mielichhoferia elongata*. Habitat surveys located three areas within the project footprint with potential for supporting populations of this species: mining tailings, large boulders, and steep cliffs forming the walls of a narrow chute. For the most part, these areas will be avoided due to the infeasibility of moving large equipment or placing trees over uneven, steep surfaces. The boulders will be avoided altogether. An excavator will twice be walked over a small portion of the river rock mining tailings, most of which are densely covered by Himalayan Blackberry with little understory vegetation. A couple of the sites have very steep access routes, requiring hand-cabing the logs down to the creek. Though *M. elongata* prefers rocky cliffs, the logs will be cabled down eroding gaps along those slopes, not along rocky outcrops. Therefore, it is very unlikely that the rocks will be disturbed. Spore-producing plants such as mosses have remarkable dispersal abilities (Glime 2008), so it is highly likely that *M. elongata* would re-colonize rocks disturbed during construction-related activities once the rock faces have had time to oxidize. **Therefore, it is very unlikely that the proposed action would decrease the ability of *Mielichhoferia elongata* to maintain a reproducing, self-sustaining population within the project area.**

The proposed action is designed to restore natural in-stream conditions to Knownothing and Methodist Creeks, thereby increasing available moisture in adjacent riparian areas. **Therefore, it is highly likely that the proposed action would result in developing habitat that most closely imitates the natural ecological processes that created and maintained the habitat for *Mielichhoferia elongata* historically.**

In addition to the small project scale, to further reduce the risk of adversely affecting soil and botanical resources, Project Design Features (PDFs) and Best Management Practices (BMPs) would be required during implementation and they are described in Chapter 2 of the EA.

### ***Cumulative Effects***

Mining within the watershed is minimal and limited to small surface disturbances in the watersheds. If the Discovery Day hard rock mine implements a Plan of Operations it would include management to avoid altering or degrading coho salmon habitat and therefore would not cumulatively impact Knownothing Creek. No other projects are proposing ground disturbing activities in the foreseeable future within this analysis area.

Therefore, the addition of this project to the ongoing activities within the watershed (mining, fuels reduction, and stream restoration) will not combine to result in adverse cumulative effects. Therefore, restoration activities will not produce adverse cumulative effects to sensitive plant species due to the small size for the project and specified PDFs and BMPs which will mitigate potential impacts of the project.

## Compliance with Law, Regulation, Policy, and the Forest Plan

The South Fork Tributary Habitat Enhancement Project complies with Forest Service Policy (FSM 2670), and Klamath National Forest LRMP Standards and Guidelines for Sensitive plant species.

## SURVEY AND MANAGE PLANT REPORT

### Compliance with law, regulation, policy, and the Forest Plan

Under the Pechman Exemptions, the proposed action will not require surveys for the species listed as Survey and Manage within the Northwest Forest Plan (USDA 2006). The South Fork Tributary Habitat Enhancement Project complies with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines (USDA 2014a). There will be no impacts to analyze for Survey and Manage species as a result of project activities.

## NOXIOUS WEED RISK ASSESSMENT

### Introduction

Species list addressed: Klamath National Forest Noxious Weed and Non-native Invasive Plant List (USDA 2013b)

Project area reviewed for presence of infestations: Yes

### Methodology

A pre-field review was conducted to determine which species of concern are present, and for which species a field survey may be necessary (Appendix A2). Noxious weeds inventories have been occurring on a rotating basis throughout the project area.

### ***Analysis Indicators***

The analysis indicators for measuring the effects of the South Fork Tributary Habitat Enhancement Project are based on law, policy, and direction. Forest Service Manual 2900 Invasive Species Management (USDA 2011) includes a policy statement calling for a risk assessment for noxious weeds to be completed for every project. The Klamath National Forest has placed a high priority on management of noxious weeds. Management includes reducing management related introduction and spread of noxious weeds on the Forest. The KNF Land and Resource Management Plan includes Forest-wide Standards and Guidelines for vegetative management that call for all silvicultural practices to consider how to best prevent introducing noxious or alien weeds (USDA 1994, p.4-50). Additional direction is found in Executive Order #13112. *Invasive species. Order by President Bill Clinton to prevent the introduction of invasive species and provide for their control* (1999).

The Analysis Indicator for noxious weeds is the risk of spread of noxious weeds as a result of project related activities.

## ***Spatial and Temporal Bounding of the Analysis Area***

The spatial boundary is the project area and adjacent access roads. The temporal boundary is the time it takes to complete project implementation and for a layer of mulch and debris to recover bare ground, three to five years.

## **Affected Environment**

I have reviewed the proposed project area and the GIS noxious weeds layer. Noxious weed surveys have been conducted within this project area as part of ongoing annual inventory completed by the Forest Noxious Weeds Crew and Salmon River Restoration Council's Noxious Weeds Crew. Noxious Weeds Program records revealed that one infestation is present within the project area.

### **Noxious Weeds Present in the Project Area:**

***Centaurea solstitialis* (yellow star-thistle)** – *C. solstitialis* originally from southern Europe and western Eurasia, is a winter annual or short-lived perennial, preferring roadsides and disturbed areas (Cal-IPC 2016). Seeds germinate in the fall, following rain, form taprooted rosettes, then bolt in late spring to early summer, the plants then flower and fruit from June through September (Cal-IPC 2016). Plants can develop up to 1,000 flowering heads per plant, producing 30 to 80 seeds per flower head (Zouhar 2002). Seeds generally drop within 2 feet of the plant and are dispersed by vehicles along roadways, waterways, human/animal contact, and to a limited extent wind, which disperses seeds up to 16 feet (Cal-IPC 2016; Zouhar 2002). Seeds are spread as a contaminant in hay and crop seed (Cal-IPC 2016). *C. solstitialis* is a CW-rated species for the State and a moderate priority for the Klamath National Forest (CDFA 2015; USDA 2013b). *C. solstitialis* is found throughout the Klamath NF and is expanding in range. There are 120 infestations mapped on the Klamath NF which is only a portion of what actually exists. This species is only treated where it threatens Wilderness Areas, Botanical Areas, or other special habitat areas.

Known sites within the Project area: An infestation of *C. solstitialis* occurs along Forest Road 39N34, along Methodist Creek. This infestation has not been treated by the Noxious Weeds Crews in recent years.

## **Environmental Consequences**

### ***Alternative 1 -No Action***

#### ***Direct and Indirect Effects***

If the no action alternative is selected, there would be no soil or vegetation disturbance within the project area; the noxious weed populations would remain the same as the current condition.

**Therefore, the no action alternative would have no effect to Klamath N.F. listed noxious weeds.**

#### ***Cumulative Effects***

There will be no direct or indirect effects to the risk of spread of noxious weeds and therefore, no cumulative effects as a result of alternative 1.

## ***Alternative 2 – Proposed Action***

### ***Direct and Indirect Effects***

The South Fork Tributary Habitat Enhancement Project is proposing activities that require using heavy equipment to restore channel complexity by placing large wood instream habitat structures on the banks of the creeks. A total of twenty small diameter trees will be removed from the sites for use in restoration activities. This type of work creates relatively low amounts of ground disturbance, and may leave some openings that could be vulnerable to infestation if a seed source is introduced. Activities that require soil disturbance for implementation have the potential to create habitat for noxious weed species, however, project design features have been incorporated into the proposed action to minimize the potential spread of noxious weed infestations that currently exist within the project area. These project design features will be sufficient to reduce the risk of spreading infestations into or out of the project area. Implementation of mandatory project design features – Equipment Cleaning and Certified Weed Free Materials – in the contract will reduce the risk of introduction of new noxious weeds into the project area. **There is a low risk that the South Fork Tributary Habitat Enhancement Project will cause the introduction or spread of Klamath NF listed noxious weeds.**

### ***Cumulative Effects***

The Hotelling Gulch Fish Passage and Stream Restoration Project and the Knownothing Fuels Reduction project are adjacent to Cecilville Road which goes through the analysis area. These projects are expected to have a low risk of introducing or spreading listed noxious weeds with the implementation of project design features that include heavy machinery washing. When the South Fork Tributary Habitat Enhancement Project which also has a low risk of spread is combined with the stream restoration and fuels reduction projects, the risk of introduction or spread of weeds remains low.

### **Compliance with law, regulation, policy, and the Forest Plan**

There will be a low risk of noxious weed introduction and spread within the South Fork Tributary Habitat Enhancement Project area. Project design features have been incorporated into the proposed action which are expected to reduce the risk of weed introduction and spread. Forest Plan Standards and Guidelines and Manual direction will be met.

## **EXECUTIVE SUMMARY**

The South Fork Tributary Habitat Enhancement Project Botany Biological Assessment, Biological Evaluation, Survey and Manage Review, Noxious Weed Risk Assessment, and Pre-field documents: Appendices A-1, A-2, and B are summarized in this section and are available in the project record. The purpose of this document is to evaluate the South Fork Tributary Habitat Enhancement Project in sufficient detail to determine its effects on Endangered, Threatened, Proposed, Sensitive, and Survey and Manage plant species as well as determine the risk of introducing or spreading Noxious Weed species.

## Methodology

The significance of management activities upon plant species viability depends upon many factors, including the size of known populations, the wider geographic range of known plant populations outside of the project area, and the degree of species sensitivity to short-term and long-term habitat modification. The alternatives are evaluated in terms of how they would affect plant species viability in the context of the above factors.

### ***Analysis Indicators***

There are no plant species listed as Threatened, Endangered, or Proposed within the project area (Appendix B), therefore, there will be no impacts to analyze as a result of project activities. The analysis indicators for measuring the effects to botanical resources are based on law, policy, and direction.

Under the Pechman Exemptions, the proposed action will not require surveys for the species listed as Survey and Manage within the Northwest Forest Plan (USDA 2006). The South Fork Tributary Habitat Enhancement Project complies with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines (USDA 2014a). There will be no impacts to analyze for Survey and Manage species as a result of project activities.

### Sensitive plant species:

Section 7 of the Endangered Species Act of 1973, as amended, and Forest Service Policy (FSM 2670) direct federal agencies to ensure that any action authorized, funded, or permitted by such agencies is not likely to jeopardize the continued existence of 1) species listed, or proposed to be listed as Endangered or Threatened by the U.S. Fish and Wildlife Service, and 2) species listed as Sensitive by the Region 5 Regional Forester, or to cause a trend to federal listing for species listed as Sensitive (USDA 2005).

The alternatives are compared using the following indicators:

- The likelihood that the level of disturbance would decrease the ability of the sensitive species to maintain reproducing, self-sustaining populations within the project area.
- The likelihood that habitat would be managed in a manner that most closely imitates the natural ecological processes that created and maintained the sensitive species habitat historically.

### Noxious Weeds:

Forest Service Manual 2900 Invasive Species Management (USDA 2011) includes a policy statement calling for a risk assessment for noxious weeds to be completed for every project. The Klamath National Forest has placed a high priority on management of noxious weeds. Management includes reducing management related introduction and spread of noxious weeds on the Forest (USDA 2001). The KNF Land and Resource Management Plan includes Forest-wide Standards and Guidelines for vegetative management that call for all silvicultural practices to consider how to best prevent introducing noxious or alien weeds (USDA 1994, p.4-50). Additional direction is found in Executive Order #13112 (1999).

The alternatives are compared using the following indicator:

- Risk of spread of Noxious Weeds.

### ***Spatial and Temporal Context***

#### Threatened, Endangered, Proposed, and Sensitive plant species:

The project area is the analysis area. This boundary is appropriate for assessing the project impacts as they might be experienced by existing sensitive species within the project area.

The temporal boundary is the time it takes to complete project implementation and for a layer of mulch and debris to recover bare ground, three to five years.

#### Noxious Weeds:

The spatial boundary is the project area and adjacent access roads. The temporal boundary is the time it takes to complete project implementation and for a layer of mulch and debris to recover bare ground, three to five years.

### **Affected Environment**

A pre-field review was conducted to determine which species of concern are present, and for which species a field survey may be necessary (Appendx A2). There are no known sites and surveys were not triggered for any species listed as Threatened, Endangered, or Proposed. Field surveys were conducted for the specific project area. The pre-field review revealed that no sensitive plant species are known to occur within the project area and that the noxious weed species *Centaurea solstitialis* occurs in the project area. Though the pre-field review (Appendix A2, step 3) indicated that the two fungal species *Cudonia monticola* (KNF Sensitive) and *Phaeocollybia olivacea* (KNF Sensitive) and the bryophyte *Mielichhoferia elongata* (KNF Sensitive) could occur in the area, surveys for preferred habitat were conducted, while occurrence surveys were not conducted because the two fungal species would not be fruiting until fall and the bryophyte species would not be visible during the window for project surveys.

**Table 1. Plant species of concern present or potentially present in the project area**

SPECIES	STATUS
<i>Centaurea solstitialis</i>	Noxious Weed; KNF moderate priority; State CW-rated
<i>Cudonia monticola</i>	KNF Sensitive
<i>Mielichhoferia elongata</i>	KNF Sensitive
<i>Phaeocollybia olivacea</i>	KNF Sensitive

### **Threatened, Endangered, and Proposed plant species**

### **Alternative 1 and Alternative 2**

#### *Direct and Indirect Effects*



The South Fork Tributary Habitat Enhancement Project is not within the range of any federally listed TEP plant species. A field review has been conducted, and no potentially suitable habitat has been located and no new sites were discovered. It is my determination that the South Fork Tributary Habitat Enhancement Project will not affect *Arabis macdonaldiana*, *Chamaesyce hooveri*, *Fritillaria gentneri*, *Orcuttia tenuis* or *Pinus albicaulis*.

### *Cumulative Effects*

There are no direct or indirect effects, and therefore there are no cumulative effects on threatened, endangered, or proposed plant species as a result of this project.

## Sensitive plant species

### **Alternative 1 -No Action**

#### *Direct and Indirect Effect*

The no action alternative would have no effect on the ability of *Cudonia monticola*, *Mielichhoferia elongata*, or *Phaeocollybia olivacea* to maintain a reproducing, self-sustaining population within the project area. It is unlikely that the no action alternative would result in developing habitat that most closely imitates the natural ecological processes that created and maintained the habitat for the three species historically.

#### *Cumulative Effect*

The current condition of the channel in relation to the ongoing activities within the watershed will not combine to result in adverse cumulative effects.

### **Alternative 2 – Proposed Action**

#### *Direct and Indirect Effect*

The South Fork Tributary Habitat Enhancement Project would not significantly affect Sensitive plant species. It is very unlikely that the proposed action would decrease the ability of the *Cudonia monticola*, *Mielichhoferia elongata*, and *Phaeocollybia olivacea* to maintain reproducing, self-sustaining populations within the project area due to the small and localized area of ground disturbance that would take place. It is highly likely that the proposed action would result in developing habitat that most closely imitates the natural ecological processes that created and maintained the habitat for the three species historically due to the projects objective of enhancing hyporheic flow, shade, and moisture levels, thereby increasing the quality of preferred habitat.

#### *Cumulative Effect*

The addition of this project to the ongoing activities within the watershed will not combine to result in adverse cumulative effects.

## Noxious Weeds

### **Alternative 1 -No Action**

#### *Direct and Indirect Effect*

The no action alternative would have no effect to Klamath NF listed noxious weeds because there would be no soil or vegetation disturbance within the project area; the noxious weed populations would remain the same as the current condition.

#### *Cumulative Effect*

There will be no effect to the risk of spread of noxious weeds and therefore, no cumulative effects as a result of alternative 1.

## **Alternative 2 – Proposed Action**

#### *Direct and Indirect Effect*

There is a low risk that the South Fork Tributary Habitat Enhancement Project would cause the introduction or spread of Klamath NF listed noxious weeds.

#### *Cumulative Effect*

The Hotelling Gulch Fish Passage and Stream Restoration Project and the Knownothing Fuels Reduction project are adjacent to Cecilville Road which goes through the project area. These projects are expected to have a low risk of introducing or spreading listed noxious weeds with the implementation of project design features that include heavy machinery washing. When the South Fork Tributary Habitat Enhancement Project is combined with other on-going activities within the watershed, the risk of introduction or spread of weeds remains low.

## **Compliance with law, regulation, policy, and the Forest Plan**

Threatened, Endangered, Proposed, and Sensitive Plants: The South Fork Tributary Habitat Enhancement Project complies with section 7 of the Endangered Species Act, as amended, Forest Service Policy (FSM 2670), and Klamath National Forest LRMP Standards and Guidelines for Sensitive plant species.

Survey and Manage Plants: Under the Pechman Exemptions, the proposed action will not require surveys for the species listed as Survey and Manage within the Northwest Forest Plan (USDA 2006). The South Fork Tributary Habitat Enhancement Project complies with the 2001 Record of Decision and Standards and Guidelines for Amendments to the Survey and Manage, Protection Buffer, and other Mitigation Measure Standards and Guidelines (USDA 2014a). There will be no impacts to analyze for Survey and Manage species as a result of project activities.

Noxious Weeds: The South Fork Tributary Habitat Enhancement Project complies with the Forest Service Manual 2900 and Forest Plan Standards and Guidelines for noxious weed species.

#### *Environmental Consequences Comparison of Effects*

Table 2 below displays the comparison of effects for each alternative by analysis indicator.

**Table 2. Botanical Resources Analysis Indicators by Alternative**

<b>Analysis Indicator</b>	<b>Alternative 1 (No Action)</b>	<b>Alternative 2 (Proposed Action)</b>
Effects to Threatened, Endangered, or Proposed Species under the ESA	No species present in analysis area	No species present in analysis area
Likelihood that the level of disturbance would decrease the ability of Sensitive Species to maintain reproducing, self-sustaining populations within the project area.	No effect	Very unlikely
Likelihood that habitat would be managed in a manner that most closely imitates the natural ecological processes that created and maintained the habitat historically of Sensitive Species.	Unlikely	Highly likely
Risk of introduction or spread of listed noxious plant species	Low	Low

## ***Botany and Noxious Weeds Project Design Features***

**Table 3. Project design features for Alternative 2 (Proposed Action)**

<b>Design Feature</b>	<b>Description</b>
WEED-1	Equipment will be washed to prevent the spread of invasive species, appropriate equipment cleaning procedures will occur prior to moving to the project area, and after leaving the project area.
WEED-2	Wherever seed and/or straw is used to restore areas of ground disturbance, certified weed free seed and straw would be specified in the contract and used during implementation and any follow up treatments. Only native species will be used for seeding areas of disturbance.
WEED-3	Noxious weed infestations will be flagged on the ground prior to project implementation. Known infestations of noxious weeds will be treated by either manual or mechanical methods prior to seed set to avoid transporting seeds from the infested locations to other portions of the project area.

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# APPENDIX A1 – BOTANICAL PRE-FIELD REVIEW ANALYSIS FLOWCHART

Project: **South Fork Tributary Salmonid Habitat Enhancement Project**

Name: Emily Ferrell

Date: 1/11/2017

This form serves to track special management plants listed by the Klamath National Forest through the pre-field analysis process. Species considered in this document are those species listed as Threatened, Endangered, Proposed, or Sensitive on the Klamath (USDA 2013).

**Completion of this form certifies that pre-field evaluation procedures are in compliance with species survey protocols.**

**Sensitive Plants:** Regional botanical survey protocol is triggered if column 1 is "yes" *and* if either column 2 or 5 (both parts) is "yes".\*

Vascular Plants:			1	2	3	4	5		
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	Known site exists in proposed project area	Known site exists in 5th field watershed	Known site exists in adjacent 24K quads*	Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
ARMA33	<i>Arabis macdonaldiana</i> McDonald's rock cress	State, Federal Endangered		no	N/A	N/A	no <sup>1</sup>	NA	no
ASAP	<i>Astragalus applegatei</i> Applegate's milk-vetch	Federal Endangered		no	N/A	N/A	no <sup>1</sup>	NA	no
BEOR	<i>Bensoniella oregana</i> bensoniella	R5 Sensitive (not on KNF list) CA Rare		no	no	no	no <sup>3</sup>	no <sup>3</sup>	no

Vascular Plants:			1	2	3	4	5		
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	Known site exists in proposed project area	Known site exists in 5th field watershed	Known site exists in adjacent 24K quads*	Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
BOCR	<i>Botrychium crenulatum</i> scalloped moonwort	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
BOLU	<i>Botrychium lunaria</i> common moonwort	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
BOMI	<i>Botrychium minganense</i> Mingan moonwort	Sensitive		no	no	no	no <sup>2</sup>	NA	no
BOMO	<i>Botrychium montanum</i> mountain grape-fern	Sensitive		no	no	no	no <sup>2</sup>	NA	no
BOPI	<i>Botrychium pinnatum</i> northwest moonwort	Sensitive		no	N/A	N/A	no <sup>5</sup>	no <sup>5</sup>	no
BOPU2	<i>Botrychium pumicola</i> Crater Lake grape-fern	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
CAGR	<i>Calochortus greenii</i> Green's mariposa-lily	Sensitive		no	N/A	N/A	no <sup>1</sup>	NA	no
CAPE	<i>Calochortus persistens</i> Siskiyou mariposa-lily	Sensitive, CA Rare, Federal Candidate		no	N/A	N/A	no <sup>2</sup>	NA	no
CAWI8	<i>Campanula wilkinsiana</i> Wilkin's harebell	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no
CHSU	<i>Chaenactis suffrutescens</i> Shasta chaenactis	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no
CYFA	<i>Cypripedium fasciculatum</i> clustered lady's slipper	Sensitive	yes	no	yes	yes	yes <sup>2</sup>	maybe <sup>2,4</sup>	yes
CYMO2	<i>Cypripedium montanum</i> mountain lady slipper	Sensitive	yes	no	yes	yes	yes <sup>2</sup>	maybe <sup>2,4</sup>	yes
DRCA6	<i>Draba carnosula</i> Mt. Shasta draba	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no



Vascular Plants:			1	2	3	4	5		
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	Known site exists in proposed project area	Known site exists in 5th field watershed	Known site exists in adjacent 24K quads*	Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
EPOR	<i>Epilobium oreganum</i> Oregon fireweed	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>3,4</sup>	no
ERAL6	<i>Eriogonum alpinum</i> Trinity buckwheat	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
ERHI7	<i>Eriogonum hirtellum</i> Klamath Mtn. buckwheat	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
ERURE	<i>Eriogonum ursinum</i> var. <i>erubescens</i> blushing wild buckwheat	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
ERHE7	<i>Erythronium hendersonii</i> Henderson's fawn lily	Sensitive	yes	no	N/A	N/A	yes <sup>5</sup>	yes <sup>2</sup>	yes
EUVI	<i>Eucephalus vialis</i> (Aster) wayside aster	Sensitive		no	no	no	no <sup>2</sup>	NA	no
FRUM2	<i>Frasera umpquaensis</i> clustered green-gentian	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
FRGE	<i>Fritillaria gentneri</i> Gentner mission-bells	State, Federal Endangered		no	N/A	N/A	no <sup>1</sup>	NA	no
HOHE2	<i>Horkelia hendersonii</i> Henderson's horkelia	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
IVPI	<i>Ivesia pickeringii</i> Pickering's ivesia	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
LULEA	<i>Lupinus lepidus</i> var. <i>ashlandensis</i> Mt. Ashland lupine	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
MIEV	<i>Mimulus evanescens</i> ephemeral monkey flower	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
MIST9	<i>Minuartia stolonifera</i> Scott Mtn. sandwort	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no

Vascular Plants:			1	2	3	4	5		
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	Known site exists in proposed project area	Known site exists in 5th field watershed	Known site exists in adjacent 24K quads*	Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
PACII	<i>Parnassia cirrata</i> var. <i>intermedia</i> fringed grass-of-parnassus	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
PEHO	<i>Pedicularis howelli</i> Howell's lousewort	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
PHCO20	<i>Phacelia cookei</i> Cooke's phacelia	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
PHGR2	<i>Phacelia greenei</i> Scott Valley phacelia	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
PHIN3	<i>Phacelia imundata</i> playa phacelia	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
PHH17	<i>Phlox hirsuta</i> Yreka phlox	State, Federal Endangered		no	N/A	N/A	no <sup>1</sup>	NA	no
PIAL	<i>Pinus albicaulis</i> Whitebark pine	Sensitive, Federal Proposed		no	N/A	N/A	yes <sup>1</sup>	no <sup>1</sup>	no
POCH3	<i>Polemonium chartaceum</i> Mason's sky pilot	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
RAPR	<i>Raillardella pringlei</i> showy raillardella	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
ROCO3	<i>Rorippa columbiae</i> Columbia yellow cress	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
TAHO2	<i>Tauschia howellii</i> Howell's tauschia	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
THRO4	<i>Thermopsis robusta</i> robust false lupine	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no

Bryophytes:			1	2	3	4	5		
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	Known site exists in proposed project area	Known site exists in 5th field watershed	Known site exists in adjacent 24k quads*	Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
BUVI2	<i>Buxbaumia viridis</i> green bug moss	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
FIAP	<i>Fissidens aphelotaxifolius</i> brook pocket moss	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no
HEBL2	<i>Helodium blandowii</i> Blandow's bog moss	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
MEUL70	<i>Meesia uliginosa</i> broad-nerved hump-moss	Sensitive		no	N/A	N/A	no <sup>2</sup>	NA	no
MIEL5	<i>Mielichhoferia elongata</i> elongate copper moss	Sensitive	yes	no	N/A	N/A	yes <sup>2</sup>	maybe <sup>2</sup>	yes

Fungi:									
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	1  If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	2  Known site exists in proposed project area	3  Known site exists in 5th field watershed	4  Known site exists in adjacent 5th field watershed	5  Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
BOPU4	<i>Boletus pulcherrimus</i>	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no
BRNO8	<i>Bridgeoporus nobilissimus</i> noble polypore	R5 Sensitive (not KNF listed)		no	no	No data	no <sup>2</sup>	NA	no
CUMO2	<i>Cudonia monticola</i>	Sensitive	yes	no	N/A	N/A	yes <sup>2</sup>	maybe <sup>2</sup>	yes
DERA5	<i>Dendrocollybia racemosa</i> ( <i>Collybia racemosa</i> )	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no
PHOL	<i>Phaeocollybia olivacea</i>	Sensitive	yes	no	N/A	N/A	yes <sup>2</sup>	maybe <sup>2</sup>	yes
TRFU3	<i>Tricholomopsis fulvescens</i>	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no

Lichens:			1	2	3	4	5		
Taxa Code	Species <i>Scientific name</i> Common name	R5 Sensitive, Federal & State Rare, Threatened, Endangered	If the species is assumed to be present, do the types of actions proposed in this project have the potential to directly or indirectly impact this species or alter its habitat conditions (TES)?	Known site exists in proposed project area	Known site exists in 5th field watershed	Known site exists in adjacent 5th field watershed	Project w/in known or suspected range <i>and</i> there is probability of suitable habitat w/in project area		Survey protocol triggered**
							Known or Suspected Range	Suitable Habitat	
PEGO4	<i>Peltigera gowardii</i> veined water lichen	Sensitive		no	N/A	N/A	yes <sup>2</sup>	no <sup>2</sup>	no
USLO50	<i>Usnea longissima</i> beard lichen	Sensitive (but not on KNF list)		no	no	No data	no <sup>2</sup>	NA	no

\* Analysis using CNDDDB BIOS Viewer version 5.38.09. March 4, 2016.

## References:

**USDA Forest Service. 2005.** Forest Service Manual: Wildlife, Fish, and Sensitive Plant Management (section 2670).

**USDA Forest Service 2013.** 2670: Sensitive Plant Species. Klamath National Forest. July 2013.

## Additional References:

1. Thorough review of Federal Endangered, Threatened, and Proposed species.
2. Used KNF provided TES habitat excel spreadsheet or Survey and Manage KNF Guide for habitat descriptions and recommendations for analysis.
3. Nakamura G and JK Nelson. 2001. Illustrated Field Guide to Selected Rare Plants of Northern California. University of California Agriculture and Natural Resources Communication Services. Oakland, CA.
4. Mullens, L and R Showalter. 2007. Rare Plants of Southwest Oregon. USFS and BLM Grants Pass Interagency Office. Grants Pass, OR.
5. CNPS Rare and Endangered Plant Inventory <<http://www.rareplants.cnps.org/>>
6. Species is not known to occur in California (multiple sources reviewed for each species).

# APPENDIX A2 – BOTANICAL PRE-FIELD REVIEW OF PROPOSED PROJECTS AND RESULTS OF PRELIMINARY FIELD REVIEW

## Klamath National Forest

### Botanical Prefield Review of Proposed Projects And Results of Preliminary Field Review

<b>PROJECT:</b>	<b>South Fork Tributary Habitat Enhancement Project</b>	<b>RANGER DISTRICT:</b>	Salmon-Scott
<b>USGS QUAD(S):</b>	Youngs Peak	<b>COMPARTMENTS(S):</b>	
<b>LOCATION:</b>			
<b>EVALUATED BY:</b>	Emily Ferrell		
<b>TITLE:</b>	Botanist	<b>DATE:</b>	5/10//2017

#### RESOURCES CONSULTED:

GIS and NRIS layers/Atlas X (KNF Survey and Manage)

GIS and NRIS layers/Atlas X (KNF TES species)

Aerial photos     

Stand Record Cards         

LMP Timber type GIS layer     

Botany program survey records     

Other Databases/maps     

**The objective of this pre-field is to determine if known sites are present in, or in the vicinity of, the proposed project area and to determine if potential suitable habitat for these species exists in the proposed project area. The species addressed in this document include species listed as Threatened, Endangered, and Sensitive.**

## RESULTS OF BOTANICAL PREFIELD REVIEW ANALYSIS FLOWCHART:

(See Appendix A-1)

- **Step 1: Survey Protocol triggered for following species:** *(from an evaluation of known vegetative conditions within the project area prior to conducting a field survey, using currently available information such as known population sites, past botanical surveys adjacent to the project area, botanist's personal knowledge, past vegetation mapping, EUI and Ecology program data, etc.)*

Vascular Plants	Bryophytes	Fungi
<i>Cypripedium fasciculatum</i> clustered lady's slipper	<i>Mielichhoferia elongata</i> elongate copper moss	<i>Cudonia monticola</i>
<i>Cypripedium montanum</i> mountain lady's slipper		<i>Phaeocollybia olivacea</i>
<i>Erythronium hendersonii</i> Henderson's fawn lily		

- **Step 2: Known Sites Sensitive Species**

No known sites of KNF Sensitive species exist within the project boundaries.

- **Step 3: Description of Suitable Habitat for Sensitive** *(from Step 1 list)*

SPECIES	STATUS	HABITAT
<i>Cypripedium fasciculatum</i>	KNF Sensitive	Variable, many types of coniferous and hardwood forest. <sup>1</sup> Moist to dry, shaded mixed, evergreen woods. <sup>2</sup> Usually serpentinite seeps and streambanks. <sup>3</sup>
<i>Cypripedium montanum</i>	KNF Sensitive	Moist areas, dry slopes, mixed-evergreen, or coniferous forest. <sup>1</sup> Mixed conifer forest in deep humus. <sup>2</sup> Broadleaf upland, cismontane woodland, lower montane coniferous forest, north coast coniferous forest. <sup>3</sup>
<i>Erythronium hendersonii</i>	KNF Sensitive Plant Rank 2B.3	Openings in dry oak woodlands. <sup>1</sup> Mixed woods, meadows, fields. <sup>2</sup>
<i>Mielichhoferia elongata</i>	KNF Sensitive	Metamorphic, sedimentary, limestone, granite and serpentine rock outcrops that often contain copper or other heavy metals and that are seasonally moist or less commonly on moist soil. <sup>1</sup> Metamorphic rock, usually acidic, usually vernal mesic, often roadsides, sometimes carbonate. <sup>3</sup>
<i>Cudonia monticola</i>	KNF Sensitive	Generally found in mature, moist coniferous forests. It occurs on litter (needles and decomposing wood) of the forest floor, where it feeds on dead and decaying organic material. Under conifers; spruce species, white fir, Douglas fir. <sup>1</sup>

SPECIES	STATUS	HABITAT
<i>Phaeocollybia olivacea</i>	KNF Sensitive	Conifer and hardwood forests where it can grow in arcs in the humus layer. Mid-late seral forests including partial cut units. Mixed forests with pine or oak in coastal lowlands; mixed woods in Castle Crags State Park; under oaks; under Sequoia & fir; under tan oak <sup>1</sup>

1. KNF TES habitat excel spreadsheet or Survey and Manage KNF Guide.
2. Turner M and P Gustafson. 2006. Wildflowers of the Pacific Northwest. Timber Press. Portland, OR.
3. CNPS Rare and Endangered Plant inventory <<http://www.rareplants.cnps.org/>>

- **Step 4: Preliminary Field Review:** (Document if preliminary field review does not reveal suitable habitat, in which case no further protocol surveys are needed)

Name: Melissa Van Scoyoc (SRRC), South Fork Habitat Enhancement Project  
Manager/Professional Botanist

Dates: 6/20/2016, 8/17/2016, 8/18/2016, 3/24/2017

Preliminary Field Review Results: Using intuitive controlled surveys

In early and late summer 2016 the project footprint was surveyed for potential habitat of all species to complete tasks necessary for the planning and permitting process.

A field survey was conducted on March 24<sup>th</sup>, 2017 specifically for *Erythronium hendersonii* during flowering in order to confirm species. *Erythronium hendersonii* was not observed within or near the project footprint. Additionally, no orchid-type species were observed with leaf types similar to *Cypripedium fasciculatum* or *Cypripedium montanum* within or adjacent to the project footprint. No bryophytes similar to *Mielichhoferia elongata* were observed within or adjacent to the project footprint.

A field survey was conducted on May 9<sup>th</sup>, 2017 for the *Cypripedium* species. Neither *Cypripedium fasciculatum* nor *Cypripedium montanum* were observed within or adjacent to the project footprint.

Surveys for *Cudonia monticola* and *Phaeocollybia olivacea* presence were not conducted because this species' would not be fruiting until fall, which is outside the window for project surveys.

Name: Courtney Otto (HSU), CDFW Project Botanist

Dates: 05/16/2016

Preliminary Field Review Results: Using intuitive controlled surveys

Field surveys were conducted by CDFW's contracted CEQA Botanist for multiple sensitive species, including *Erythronium hendersonii*, *Lobaria oregana*, and *Ptilidium californicum*. No species were observed within or near the project footprint. The Botanist also surveyed for *Piperia candida*. However, the survey occurred outside of *P. candida*'s flowering window, requiring surveys for any orchid-type leaves. No orchid-type species were observed. Therefore,



neither *Cypripedium fasciculatum* nor *Cypripedium montanum* were observed within or adjacent to the project footprint.

Field reviews revealed habitat for the following species:

<b>Vascular Plants</b>	<b>Bryophytes</b>	<b>Fungi</b>
<i>Cypripedium fasciculatum</i>	<i>Mielichhoferia elongata</i>	<i>Cudonia monticola</i>
<i>Cypripedium montanum</i>		<i>Phaeocollybia olivacea</i>
<i>Erythronium hendersonii</i>		

The field review did not locate any suitable habitat for these species for which the survey protocol was triggered:

Not Applicable.

**Threatened, Endangered, and Sensitive species:** Field surveys are not required for species for which it is determined that the proposed ground disturbing activity: 1) will not impact populations or alter habitat conditions, or 2) for which the project area is not within the known or suspected range, or 3) for which there is no suitable habitat.

**Documentation of the prefield review is complete at this step for those species that do not meet the above criteria.**

• **Step 5: Field Survey Required For The Following Species:**

<b>SPECIES</b>	<b>APPROXIMATE DATES</b>
<i>Cypripedium fasciculatum</i>	March - August <sup>1</sup>
<i>Cypripedium montanum</i>	March - August <sup>1</sup>
<i>Erythronium hendersonii</i>	April – July <sup>1</sup>
<i>Mielichhoferia elongate</i>	Anytime <sup>1</sup>
<i>Ptilidium californicum</i>	May – August <sup>1</sup>
<i>Cudonia monticola</i>	Late summer and autumn <sup>2</sup>

1. CNPS Rare and Endangered Plant Inventory <<http://www.rareplants.cnps.org/>>

2. Handbook to Additional Fungal Species of Special Concern in the Northwest Forest Plan. [USDA 2003](#)

**Previous Field Surveys of This Project Area:**

None ☒ General area \_\_\_\_\_ Specific project site \_\_\_\_\_

Previous project name \_\_\_\_\_

Previous survey adequate for this project: Yes: \_\_\_\_\_ No: \_\_\_\_\_

**MANAGE ALL KNOWN SITES and MANAGE HIGH PRIORITY SITES:**

- **Step 6: Known Sites of Species of Interest Category B, D, & E Plant Species (Manage Known Sites) Within the Project Area (see attached Appendix A-1):**

Not Applicable.

- **Step 7: Comments, Other Botanical Elements of Concern (i.e. invasive species):**

**References:**

**USDA Forest Service 2013.** 2670: *Federally listed and Sensitive Plant Species*. Klamath National Forest. July, 2013.

**USDA Forest Service 2014a.** *Threatened, Endangered and Sensitive Plant Species*, Klamath National Forest. TES\_habitats\_2014.doc. Species, habitat, distribution and rarity, and management sensitivity. January 2014.

# APPENDIX B – ENDANGERED, THREATENED, AND PROPOSED BOTANICAL BIOLOGICAL ASSESSMENT SPECIALIST REPORT

## South Fork Tributary Habitat Enhancement Project

### Endangered, Threatened, and Proposed Botanical Biological Assessment Specialist Report

January 11, 2017

Emily Ferrell

#### Analysis of botanical species listed in the IPaC Trust Resource Report for the South Fork Tributary Habitat Enhancement Project:

**MacDonald's rock-cress (*Arabis macdonaldiana*):** This species is known to occur within the Lower Klamath River watershed<sup>1</sup>, California. Preferred habitat for this species is described as “crevices, cracks, and margins of rocks on barren to shrub-covered shallow, rocky ultramafic soils of peridotite origin; also in rocky openings in Jeffrey pine-dominated woodland on granite slopes and ridges or seepage areas...1,200 to 2,200 meters.”<sup>2</sup> Such habitat does not occur within the project area. Therefore, this species is unlikely to occur within the project area and will not be analyzed further.

**Hoover's spurge (*Chamaesyce hooveri*):** Preferred habitat for this species is described as “drying beds of vernal pools in valley grassland communities, usually in the larger, deeper pools where there is little cover by other plants...20-150 meters.”<sup>2</sup> Such habitat does not occur within the project area. Additionally, the closest known occurrence of this species is south of Big Bend, California<sup>3</sup>. The closest USWFS designated critical habitat is south of Red Bluff, California<sup>4</sup>. Therefore, this species is unlikely to occur within the project area and will not be analyzed further.

**Gentner's fritillary (*Fritillaria gentneri*):** Preferred habitat for this species is described as “open, dry low-elevation sites in mixed oak-madrone woodlands, ponderosa pine woodlands, chaparral, and grasslands 1,000-5,000 feet.”<sup>5</sup> Though preferred habitat for this species does occur within this project area, the closest known occurrence of this species is in the Upper Klamath River watershed<sup>1</sup>, near the California/Oregon border<sup>6</sup>. Therefore, this species is unlikely to occur within the project area and will not be analyzed further.

**Slender orcutt grass (*Orcuttia tenuis*):** Preferred habitat for this species is described as “vernal pools and similar habitat, occasionally on reservoir edges or stream floodplains, on clay soils with seasonal inundation in valley grassland to coniferous forest or sagebrush scrub...30-1,700 meters.”<sup>2</sup> Such habitat does not occur within the project area. Additionally, the closest known occurrence of this species and USFWS designated critical habitat is near Redding, California<sup>4,7</sup>. Therefore, this species is unlikely to occur within the project area and will not be analyzed further.

**Whitebark pine (*Pinus albicaulis*):** This species is known to occur within the Salmon River watershed. Preferred habitat for this species is described as “montane forests and on thin, rocky, cold soils at or near timberline.”<sup>1</sup> Such habitat does not occur within the project area. Therefore, this species is unlikely to occur within the project area and will not be analyzed further.

## References

1. [Natureserve](#)
2. Nakamura G and JK Nelson. 2001. Illustrated Field Guide to Selected Rare Plants of Northern California. University of California Agriculture and Natural Resources Communication Services. Oakland, CA.
3. [Calflora](#) distribution for Hoover’s spurge
4. [USFWS](#) link to critical habitat GIS data
5. Mullens, L and R Showalter. 2007. Rare Plants of Southwest Oregon. USFS and BLM Grants Pass Interagency Office. Grants Pass, OR.
6. [Calflora](#) distribution for Gentner’s fritillary
7. [Calflora](#) distribution for slender orcutt grass